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I. INTRODUCTION

The following habitat type groups are developed for Northern Idaho and Western Montana, subsections M333A, M333B, M333C and M333D. They are developed to assist with sub-regional and landscape assessments within these subsections.

Every habitat type is unique in some way. Habitat type grouping is based on similarities in natural disturbance regimes, successional patterns and structural characteristics of mature stands. We feel that these habitat type groupings are appropriate for sub-regional and landscape level assessments within these subsections.

The basic vegetative classification used are habitat types. The guiding texts are *Forest Habitat Types of Montana* (Pfister et al. 1977) and *Forest Habitat Types of Northern Idaho: A Second Approximation* (Cooper, 1987). Fire groups are from Fire *Ecology of Western Montana Forest Habitat Types* (Fischer, 1987) and *Fire Ecology of the Forest Habitat of Northern Idaho* (Smith, 1995). Habitat types without published fire groups have blanks in the fire group table column. The remainder of the texts used are listed in the references section.

The fire intensity descriptions used in this grouping are from *Fire Ecology of Western Montana Forest Habitat Types* (Fischer, 1987). Low severity fires have minimal impact on the site. Moderate severity fires burn surface fuels and occasionally torch individual or groups of overstory trees. Severe fires burn through the overstory and constitute stand replacement.

II. FOREST HABITAT GROUPS AND DESCRIPTIONS

HABITAT TYPE GROUP 1 - WARM and DRY

This habitat type group is characterized in naturally functioning ecosystems by dry and open-grown park-like stands of *Pinus ponderosa* or *Pseudotsuga menziesii* with bunch grass understories. Most of the sites occur on hot and dry landscapes at lower elevations and on west and south aspects.

A natural fire free interval of 5 to 25 years on these sites maintained grassy and open park-like stands dominated by large and old *Pinus ponderosa* and some *Pseudotsuga menziesii* (Fischer, 1987). These were low severity under-burning fires. Stand replacement fires were probably rare.

Habitat Types comprising Habitat Group 1

HABITAT TYPES	PHASE	CODE	FIRE GROUP CODE	
			MT	ID
<i>Pinus ponderosa</i> / <i>Agropyron spicatum</i>		130	2	1
<i>Pinus ponderosa</i> / <i>Festuca Idahoensis</i>		140	2	
	<i>Festuca Idahoensis</i>	141	2	1
	<i>Festuca scabrella</i>	142	2	
<i>Pinus ponderosa</i> / <i>Purshia tridentata</i>		160	2	
<i>Pinus ponderosa</i> / <i>Purshia tridentata</i>	<i>Agropyron spicatum</i>	161	2	
<i>Pinus ponderosa</i> / <i>Purshia tridentata</i>	<i>Festuca Idahoensis</i>	162	2	
<i>Pseudotsuga menziesii</i> / <i>Agropyron spicatum</i>		210	4	1
<i>Pseudotsuga menziesii</i> / <i>Festuca Idahoensis</i>		220	5	1
<i>Pseudotsuga menziesii</i> / <i>Festuca scabrella</i>		230	4	
<i>Pseudotsuga menziesii</i> / <i>Symphoricarpos albus</i>	<i>Agropyron spicatum</i>	311	4	1
<i>Pseudotsuga menziesii</i> / <i>Calamagostis rubescens</i>	<i>Agropyron spicatum</i>	321	4	

HABITAT TYPE GROUP 2 - MODERATELY WARM and DRY

These habitat types are characterized in naturally functioning ecosystems by open-grown stands of *Pinus ponderosa* or *Pseudotsuga menziesii* with grass and brush understories. Most of the sites normally occur at lower elevations on many aspects, but are also found at higher elevation on more southerly and westerly aspects.

The natural fire-free interval for underburning was 5 to 50 years (Fischer, 1987). These mostly low and moderate severity fires maintained most commonly open park-like stands dominated by *Pinus ponderosa*. In some cases, stand composition was high in *Pseudotsuga menziesii* and *Larix occidentalis*. Little information is available for stand replacement fires, but these severe intensity fires occurred only after a fire free interval probably exceeding 500 years on the drier types and 50-200 years on the more moist types (Smith, 1995).

Habitat Types comprising Habitat Group 2

HABITAT TYPE	PHASE	CODE	FIRE GROUP CODE	
			MT	ID
Pinus ponderosa/ Symphoricarpos albus		170	2	
	Symphoricarpos albus	171	2	1
	Berberis repens	172	2	
Pinus ponderosa/ Physocarpus malvaceus		190		2
Pseudotsuga menziesii/ Vaccinium caespitosum		250	6/7	2
Pseudotsuga menziesii/ Physocarpus malvaceus		260	6	
	Physocarpus malvaceus	261	6	
	Calamagrostis rubescens	262	4	2
	Smilacina stellata	263		2
Pseudotsuga menziesii/ Vaccinium globulare		280		
	Vaccinium globulare	281	6	
	Arctostaphylos uva-ursi	282	6	2
	Xerophyllum tenax	283	6	
Pseudotsuga menziesii/ Linnaea borealis	Calamagrostis rubescens	292	6	
Pseudotsuga menziesii/ Symphoricarpos albus		310	6	
	Calamagrostis rubescens	312	6	2
	Symphoricarpos albus	313	6	
Pseudotsuga menziesii/ Calamagrostis rubescens		320		
	Arctostaphylos uva-ursi	322		2
	Calamagrostis rubescens	323	4	
	Pinus ponderosa	324		2
Pseudotsuga menziesii/ Carex geyeri		330		2
Pseudotsuga menziesii/ Spiraea betulifolia		340	4	1
Pseudotsuga menziesii/ Arctostaphylos uva-ursi		350	6	
Pseudotsuga menziesii/ Juniperus communis		360		
Pseudotsuga menziesii/ Arnica cordifolia		370		
Abies grandis/ Spiraea betulifolia		505	4	2
Abies grandis/ Physocarpus malvaceus		506	4	
	Coptis occidentalis	507	4	2
	Physocarpus malvaceus	508	4	2

HABITAT GROUP 3 - MODERATELY WARM and MODERATELY DRY

This contains a highly variable group of habitat types. The group is transition between the dry and more moist types. It includes types characteristic of each.

These habitat types were characterized in naturally functioning ecosystems by mixed species stands of *Pinus ponderosa*, *Pseudotsuga menziesii*, *Larix occidentalis*, *Pinus contorta* and *Abies grandis*. Understories in absence of fire or other disturbance are composed primarily of dense *Pseudotsuga menziesii* or *Abies grandis* thickets, though other tree species may be present.

The natural fire free interval for underburning was 15 to 50 years. Mixed intensity of moderate and severe fires commonly created mosaics of even-aged stands with survivor individual and groups of trees (Smith, 1995). Also common are open park-like stands dominated by *Pinus ponderosa*, *Larix occidentalis* and *Pseudotsuga menziesii*.

Habitat Types comprising Habitat Group 3

HABITAT TYPES	PHASE	CODE	FIRE GROUP CODE	
			MT	ID
<i>Pseudotsuga menziesii</i> / <i>Linnaea borealis</i>		290	6	
	<i>Symphoricarpos albus</i>	291	6	
	<i>Vaccinium globulare</i>	293	6	
<i>Abies grandis</i> / <i>Xerophyllum tenax</i>		510	6	7
	<i>Coptis occidentalis</i>	511	11	7
	<i>Vaccinium globulare</i>	512	6	7
<i>Abies grandis</i> / <i>Vaccinium globulare</i>		515	6	7
<i>Abies grandis</i> / <i>Linnaea borealis</i>		590	11	
	<i>Linnaea borealis</i>	591	11	7
	<i>Xerophyllum tenax</i>	592	6	7
<i>Abies grandis</i> / <i>Clintonia uniflora</i>	<i>Xerophyllum tenax</i>	523	11	7

HABITAT GROUP 4 - MODERATELY WARM and MOIST

These are warm and moist habitats occurring along the lower slopes and valley bottoms. The group is highly diverse and nearly all the conifer species in the area can occur on these types. Understory vegetation may be dominated by a wide variety of species.

Fire free interval is wide from 50 years on the drier types to over 200 years on the more moist types characterizes these types. Typical fires are minor ground fires that create a mosaic within the stand. On the other extreme with drying, a complete stand replacement fire will occur. Many times this is the result of a fire burning from an adjacent and drier type.

Fire exclusion on these sites has changed them very little except to reduce the number of acres in early succession types.

Habitat Types comprising Habitat Group 4

HABITAT TYPES	PHASE	CODE	FIRE GROUP CODE	
			MT	ID
Abies grandis/Asarum caudatum		516		
	Asarum caudatum	517		7
	Menziesia ferruginea	518		7
	Taxus brevifolia	519		7
Abies grandis/ Clintonia uniflora		520	11	7
	Clintonia uniflora	521	11	7
	Aralia nudicaulis	522	11	
	Physocarpus	524	11	7
	malvaceus	525	11	7
	Menziesia ferruginea	526	11	7
	Taxus brevifolia			
Abies grandis/ Senecio triangularis		529		7

HABITAT GROUP 5 - MODERATELY COOL and MOIST

These are moderately cool and moist sites. They contain many species, including *Thuja plicata*, western *Tsuga heterophylla*, *Pseudotsuga menziesii*, *Picea engelmannii*, *Abies grandis*, *Pinus contorta*, *Tsuga mertensiana*, *Larix occidentalis* and *Pinus monticola*. Very high basal areas can be achieved on these types.

Fire frequency can be low due to the maritime influence on these sites. Fire severity can be highly variable due the most common moist conditions, but is severe during periods of drought. Fire free intervals range from 50 to greater than 200 years (Fischer, 1987). Many species do well on these sites and may thrive for centuries without disturbance. *Thuja plicata* is the most notable example.

Habitat Types comprising Habitat Group 5

HABITAT TYPES	PHASE	CODE	FIRE GROUP CODE	
			MT	ID
Thuja plicata/ Clintonia uniflora	Clintonia uniflora	530	11	8
	Aralia nudicaulis	531		
	Menziesia	532		
	ferruginea	533		
	Xerophyllum tenax	534		
	Taxus brevifolia	535		
Thuja plicata/ Aralia nudicaulis	Asarum caudatum	545	11	8
	Menziesia ferruginea	546		
	Taxus brevifolia	547		
		548		
Thuja plicata/ Gymnocarpium dryopteris		555	11	
Tsuga heterophylla/ Gymnocarpium dryopteris		565	11	
Tsuga heterophylla/Clintonia uniflora	Clintonia uniflora	570	11	
	Aralia nudicaulis	571	11	8
	Xerophyllum tenax	572	11	8
	Menziesia ferruginea	573	11	8
		574	11	8
Thuja plicata/Asarum caudatum	Aralia nudicaulis	575	11	
	Menziesia ferruginea	576	11	8
	Asarum caudatum	577	11	8
		578	11	8

HABITAT GROUP 6 - MODERATELY COOL and WET

These are very wet sites. They are forested riparian areas along streams and are associated with wetlands. Due to this very wet condition, the fire free interval can be very long. Intervals are probably much longer than the majority of fire group 11, 50 to greater than 200 years. Centuries may pass without stand replacement, severe fire (Smith, 1995).

Habitat Types comprising Habitat Group 6

HABITAT TYPES	PHASE	CODE	FIRE GROUP CODE	
			MT	ID
Pinus ponderosa/Cornus stolonifera				
Pseudotsuga menziesii/Cornus stolonifera				
Abies grandis/Athyrium filix-femina				
Thuja plicata/Athyrium filix-femina		540		
	Adiantum pedatum	541		9
	Athyrium filix-femina	542		9
Thuja plicata/Oplopanax		540	11	9
Thuja plicata/Adiantum pedatum		560		9

HABITAT GROUP 7 - COOL and MOIST

These types are characterized by cool and moist site conditions. Species diversity can be high with *Larix occidentalis*, *Pseudotsuga menziesii*, *Pinus monticola*, *Picea Engelmannii*, *Pinus contorta*, *Abies lasiocarpa* and *Abies grandis*. Other sites are dominated by *Pinus contorta* after stand replacement burns. These sites are probably too cool for *Tsuga heterophylla* and *Thuja plicata*.

Fire history information is scarce. Fire intervals are estimated at greater than 120 years for most sites (Fischer, 1987).

Habitat Types comprising Habitat Group 7

HABITAT TYPES	PHASE	CODE	FIRE GROUP CODE	
			MT	ID
Picea/Clintonia uniflora	Vaccinium caespitosum Clintonia uniflora	420	9	
		421	9	
		422	9	
Picea/Senecio streptanthifolius	Pseudotsuga menziesii Picea	460		
		461		
		462		
Picea/ Linnaea borealis		470	7	
Tsuga heterophylla/ Menziesia ferruginea		579		
Abies lasiocarpa/ Clintonia uniflora	Clintonia uniflora	620	9	
	Aralia nudicaulis	621	9	5
	Vaccinium caespitosum	622	9	
	Xerophyllum tenax	623	9	5
	Menziesia ferruginea	624	9	5
		625	9	5
Abies lasiocarpa/ Linnaea borealis	Linnaea borealis	660	9	
	Xerophyllum tenax	661	9	
		662	9	
Abies lasiocarpa/Menziesia ferruginea	Coptis occidentalis	670		5
	Luzula hitchcockii	671	9	5
	Xerophyllum tenax	672		5
	Vaccinium scoparium	673		5
		674		5
Tsuga mertensiana/ Menziesia ferruginea	Luzula hitchcockii	680		5
	Xerophyllum tenax	681	9	5
		682		5
Tsuga mertensiana/ Clintonia uniflora	Menziesia ferruginea	685		5
	Xerophyllum tenax	686		5
		687		5
Abies lasiocarpa/ Vaccinium scoparium	Thalictrum occidentale	733		
Abies lasiocarpa/ Alnus sinuata		740		
Abies lasiocarpa/ Luzula hitchcockii	Menziesia ferruginea	832	10	

HABITAT GROUP 8 - COOL and WET

These are very wet sites. They are forested riparian areas along streams and associated with wetlands. Due to this very wet condition, the fire free interval can be very long. Intervals between severe, stand replacement fires are probably much longer than the majority of fire group nine, 90 to 130 years and are probably in excess of 150 years.

Habitat Types comprising Habitat Group 8

HABITAT TYPES	PHASE	CODE	FIRE GROUP CODE	
			MT	ID
Picea/ Equisetum arvense		410		
Picea/ Galium triflorum		440		
Picea/Smilacina stellata		480		
Picea/Lysichiton americana				
Picea/Conus stolonifera				
Abies lasiocarpa/Oplopanax horridum		610		
Abies lasiocarpa/ Galium triflorum		630		
Abies lasiocarpa/ Streptopus amplexifolius	Menziesia ferruginea	635		5
	Ligusticum canbyi	636		5
	Streptopus amplexifolius	637		
Abies lasiocarpa/Calamagrostis canadensis	Calamagrostis canadensis	650	9	5
	Ligusticum canbyi	651	9	5
	Galium triflorum	652		
	Vaccinium caespitosum	653	9	5
	Ledum glandulosum	654	7	5
		655		
Abies lasiocarpa/ Actaea rubra				
Abies lasiocarpa/Ledum glandulosum	Calamagrostis canadensis			
	Ledum glandulosum			
Tsuga mertensia/Streptopus amplexifolius		675		
	Luzula hitchcockii	676		5
	Menziesia ferruginea	677		5

HABITAT GROUP 9 - COOL AND MODERATELY DRY

These are the cooler *Abies lasiocarpa* habitat types within the area. The fire free interval of these types is 50 - 130 years (Fischer, 1987). These periodic fire disturbances and high amount of low to moderate fire intensity, favors species such as *Pinus contorta*, *Pseudotsuga menziesii* and *Larix occidentalis*. Other species on these sites are commonly *Abies lasiocarpa*, *Picea* and *Pinus albicaulis*. Stands dominated by *Pinus contorta* and over 80 years of age tend to build fuels to become a part of large stand replacement events encompassing thousands of acres (Fischer, 1987). These sites especially in the *Vaccinium caespitosum* and *scoparium* types are quite frosty.

Habitat Types comprising Habitat Group 9

HABITAT TYPES	PHASE	CODE	FIRE GROUP CODE	
			MT	ID
<i>Picea/Vaccinium caespitosum</i>		450	7	
<i>Abies lasiocarpa/ Vaccinium caespitosum</i>		640	7	3
<i>Abies lasiocarpa/Linnaea borealis</i>	<i>Vaccinium scoparium</i>	663	7	
<i>Abies lasiocarpa/ Xerophyllum tenax</i>	<i>Vaccinium globulare</i>	690		
	<i>Vaccinium scoparium</i>	691	8	4
	<i>Coptis occidentalis</i>	692	8	4
	<i>Luzula hitchcockii</i>	693	7	4
<i>Tsuga mertensiana/ Xerophyllum tenax</i>		694		4
	<i>Luzula hitchcockii</i>	710	8	
	<i>Xerophyllum tenax</i>	711		4
	<i>Vaccinium scoparium</i>	712		4
<i>Abies lasiocarpa/ Vaccinium globulare</i>		713	7	4
<i>Abies lasiocarpa/ Vaccinium scoparium</i>		720	7	4
<i>Abies lasiocarpa/ Vaccinium scoparium</i>	<i>Calamagrostis rubescens</i>	730		3
	<i>Vaccinium scoparium</i>	731		
		732	7	
<i>Abies lasiocarpa/ Calamagrostis rubescens</i>		750		4
<i>Abies lasiocarpa/ Carex geyeri</i>	<i>Carex geyeri</i>	790		
	<i>Pseudotsuga menziesii</i>	791		4
		792		
<i>Abies lasiocarpa/ Arnica cordifolia</i>		780		
<i>Pinus contorta/ Purshia tridentata</i>		910		3
<i>Pinus contorta/ Vaccinium caespitosum c.t.</i>		920	7	3
<i>Pinus contorta/Linnaea borealis</i>		930	7	
<i>Pinus contorta/ Calamagrostis rubescens c.t</i>		950	7	3

HABITAT GROUP 10 - COLD and MODERATELY DRY

These types are upper elevation cold dry sites. Many of these sites are above the cold limits of conifers such as *Pseudotsuga menziesii*, *Larix occidentalis* and *Pinus monticola*. Common species are *Pinus albicaulis*, *Pinus contorta*, *Tsuga mertensiana*, *Abies lasiocarpa* and *Larix lyalii*.

The fire free interval varies considerably from 35 to over 300 years. Stand replacement fires occur after intervals of more than 200 years (Fischer et al. 1987). Most fires are of low severity because of discontinuous fuels (Arno, 1989).

Habitat Types comprising Habitat Group 10

HABITAT TYPES	PHASE	CODE	FIRE GROUP CODE	
			MT	ID
Abies lasiocarpa-Pinus albicaulis/ Vaccinium scoparium		820	10	6
Abies Lasiocarpa/ Luzula hitchcockii	Vaccinium scoparium	830		6
		831		10
Tsuga mertensiana/Luzula hitchcockii	Vaccinium scoparium	840	10	
		841	10	6
		842	10	
Pinus contorta/ Xerophyllum tenax c.t		925		3
Pinus contorta/ Vaccinium scoparium		940	7	3

HABITAT GROUP 11 - COLD

These types are high elevation cold sites. They are near timberline and above the cold limits of species such as *Pseudotsuga menziesii* and western larch. Common species are *Pinus albicaulis*, *Tsuga mertensiana*, *Abies lasiocarpa* and *Larix lyallii*.

The fire free interval varies considerably from 35 to over 300 years. Stand replacement fires occur after intervals of more than 200 years (Fischer et al. 1987).

Habitat Types comprising Habitat Group 11

HABITAT TYPES	PHASE	CODE	FIRE GROUP CODE	
			MT	ID
Pinus albicaulis-Abies lasiocarpa h.t.s		850	10	6
Alpine larch-Abies lasiocarpa h.t.s		860	10	6
Pinus albicaulis h.t.s		870	10	6

III. NON-FOREST HABITAT GROUPS

HABITAT TYPES	PHASE	CODE	FIRE GROUP CODE	
			MT	ID
Grassland Steppe		015		
Stipa comata		016		
Agropyron spicatum		017		
Festuca idahoensis		018		
Festuca scabrella		019		
Andropogon spp.		020		
Deschampsia caespitosa		021		
Shrubland Steppe		030		
Artemesia arbuscula		031		
Artemesia tridentata		032		
Artemesia tripartita		033		
Potentilla fruticosa		034		
Purshia tridentata		035		
Cercocarpus ledifolius		036		
Rhus trilobata		037		
Sarcobatus vermiculatus		038		
Eriognum spp		039		
Hardwoods		050		
Mountain Bottomlands		060		0
Carex spp		061		
Grass types		065		
Tall Forb types		070		
Crataegus spp		071		
Celtis spp		072		
Alnus spp		073		
Salix spp		074		
Populus tremuloides		078		
Populus trichocarpa		079		
Alpine Meadows and Scrub		080		0
Sedge/grass types		081		
Forb types		084		
Shrub types		087		

IV. ANTHROPOGENIC and OTHERS

TYPE	CODES
Agricultural Lands	001
Exotics	002
Rural/Urban	003
Rock/Scree/Ice	004
Water	005

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